Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (original) A method of inhibiting an induced aberration resulting from refractive surgery, the method comprising:

(a) inputting a target optical surface shape;

(b) determining a model optical surface shape based on the target optical surface shape and a set of refractive surgery system parameters;

(c) comparing the target optical surface shape and the model optical surface shape to determine an aberration induced by the set of refractive surgery system parameters; and

(d) adjusting the set of refractive surgery system parameters so as to inhibit the induced aberration.

2. The method of claim 1, wherein the set of refractive surgery system parameters comprises at least one member selected from the group consisting of a wavefront device variable, a laser ablation profile variable, a laser registration and tracking system variable, a microkeratome variable, and a healing effect variable.

3. (original) The method of claim 1, wherein the adjustment of the set of refractive surgery system parameters is based on a metric selected from the group consisting of an accuracy variable, a heating variable, and a treatment time variable.

4. (original) The method of claim 3, wherein the accuracy variable is based on a root mean squares error factor.

5. (original) The method of claim 3, wherein the heating variable is based on a temperature factor.

6. (original) The method of claim 3, wherein the treatment time variable is based on an ablation time factor.

7. (original). The method of claim 1, wherein the aberration comprises a high order aberration.

8. (original) The method of claim 1, wherein the target optical surface shape is configured to address a low order aberration.

9. (original) The method of claim 2, wherein the wavefront device variable comprises a member selected from the group consisting of a spot identification factor, an accommodation factor, and a reconstruction factor.

10. (original) The method of claim 9, wherein the reconstruction factor comprises a member selected from a group consisting of uncompensated residual error portion, a measurement error portion, and a remaining error portion.

11. (original) The method of claim 2, wherein the laser ablation profile variable comprises a member selected from the group consisting of a pulse size factor, a spot size variability factor, a beam uniformity factor, and a laser pulse repetition rate factor.

12. (original) The method of claim 2, wherein the microkeratome variable comprises a member selected from the group consisting of a central flattening and peripheral thickening effect factor and a hinge effect factor.

13. (original) The method of claim 2, wherein the laser registration and tracking system variable comprises a member selected from the group consisting of a registration factor, a linear tracking factor, and a torsional tracking factor.

14. (original) The method of claim 2, wherein the wavefront device variable is configured to address a high order aberration.

15. (original) The method of claim 2, wherein the wavefront device variable comprises a gridsize factor adjusted to about 100 μm, and the laser ablation profile variable comprises a flying spot scanning factor adjusted to range from about 1 mm to about 1.6 mm.

16. (original) The method of claim 15, wherein the flying spot scanning factor is adjusted to about 1.5 mm.

17. (original) The method of claim 2, wherein the wavefront device variable comprises a spot identification error adjusted to about 0.05 microns.

18. (original) The method of claim 2, wherein the wavefront device variable comprises a wavefront reconstruction error adjusted to about 0.05 microns.

19. (original) The method of claim 2, wherein the wavefront device variable comprises an accommodation error adjusted to about 0.25D, equivalent to about 0.325 microns RMS error for an approximately 6mm pupil.

20. (original) The method of claim 2, wherein the microkeratome variable comprises an induced positive spherical aberration adjusted to between about 0.1 microns and about 0.3 microns.

21. (original) The method of claim 2, wherein the microkeratome variable comprises a coma in the direction of the microkeratome hinge adjusted to between 0.1 microns and 0.3 microns.

22. (original) The method of claim 2, wherein the healing effect variable comprises a Gaussian kernel adjusted to about 2 micron in height and about 0.5mm in full width at half maximum (FWHM).

23. (original) The method of claim 1 wherein the set of refractive surgery system parameters is adjusted such that a post-operative total high order RMS of about 0.3 μm is achieved.

24. (original) The method of claim 23, wherein a pre-operative total high order RMS is about 0.3 μm.

25. (original) The method of claim 23, wherein each component of the total high order RMS does not exceed about 0.113 μm.

26. (original) The method of claim 1, wherein the set of refractive surgery system parameters is adjusted such that a post-operative total high order RMS of about 0.1 μm is achieved.

27. (original) The method of claim 26, wherein a pre-operative total high order RMS is about 0.3 μm.

28. (original) The method of claim 26, wherein each component of the total high order RMS does not exceed about 0.038 μm.

29. (original) The method of claim 2, wherein the laser ablation profile variable comprises a variable spot scanning factor, and the laser registration and tracking system variable comprises a registration accuracy adjusted to less than about 10 μm in both the vertical and horizontal directions and a rotational error adjusted to less than about 0.5°.

30. (original) The method of claim 2, wherein the laser ablation profile variable comprises a flying spot scanning factor, and the laser registration and tracking system variable comprises a registration accuracy adjusted to less than about 10 μm in both the vertical and horizontal directions and a rotational error adjusted to less than about 0.5°.

31. (original) The method of claim 2, wherein the laser ablation profile variable comprises a variable spot scanning factor, and the laser registration and tracking system variable comprises a tracking accuracy adjusted to less than about 20 μm in both the vertical and horizontal directions, a latency time adjusted to less than about 10 ms, and a tracking speed adjusted to about 60 Hz or greater.

32. (original) The method of claim 2, wherein the laser ablation profile variable comprises a flying spot scanning factor, and the laser registration and tracking system variable comprises a tracking accuracy adjusted to less than about 5 μm in both the vertical and horizontal directions, a latency time adjusted to less than 5 ms, and a tracking speed adjusted to about 200 Hz or greater.

33. (original) The method of claim 2, wherein the laser ablation profile variable comprises a variable spot scanning factor, and the laser registration and tracking system variable comprises a cyclo-torsional tracking angular accuracy adjusted to 0.5° or better.

34. (original) The method of claim 2, wherein the laser ablation profile variable comprises a flying spot scanning factor, and the laser registration and tracking system variable comprises a cyclo-torsional tracking angular accuracy adjusted to 0.25° or better.

35. (original) The method of claim 2, wherein the laser ablation profile variable comprises a variable spot scanning factor, and the laser registration and tracking system variable comprises a laser energy fluctuation adjusted to less than 4%.

36. (original) The method of claim 2, wherein the laser ablation profile variable comprises a flying spot scanning factor, and the laser registration and tracking system variable comprises a laser energy fluctuation adjusted to less than 2%.

37. (original) The method of claim 2, wherein the target optical surface shape comprises a set of 6-order Zernike polynomials, and the set of refractive surgery system parameters is adjusted such that each component of a post-operative total high order RMS does not exceed about 0.022 μm.

38. (original) The method of claim 2, wherein the target optical surface shape comprises a set of 6-order Zernike polynomials, and the set of refractive surgery system parameters is adjusted such that each component of a post-operative total high order RMS does not exceed about 0.0073 μm.

39. (original) The method of claim 1, wherein the set of refractive surgery system parameters is adjusted such that a post-operative total high order RMS is substantially equivalent to a pre-operative total high order RMS.

40. (original) The method of claim 1, wherein the set of refractive surgery system parameters is adjusted such that a post-operative total high order RMS is less than a pre-operative total high order RMS.

41. (original) The method of claim 1, wherein the set of refractive surgery system parameters is adjusted such that a post-operative total high order RMS is about one third the amount of a pre-operative total high order RMS.

42. (original) A method of altering aberration distribution resulting from optical surface refractive surgery, the method comprising:

(a) inputting a target optical surface shape;

(b) determining a model optical surface shape based on the target optical surface shape and a set of refractive surgery system parameters;

(c) comparing the target optical surface shape and the model optical surface shape to determine an aberration distribution; and

(d) adjusting the set of refractive surgery system parameters so as to alter the aberration distribution.

43. (original) A method of inhibiting a refractive surgery induced aberration, the method comprising:

(a) inputting a target optical surface shape;

(b) determining a model optical surface shape based on the target optical sur face shape and a set of refractive surgery system parameters, the model optical surface shape having an aberration; and

(c) adjusting the set of refractive surgery system parameters so as to inhibit the aberration.

44. (original) A system for inhibiting an induced aberration resulting from refractive surgery, the system comprising:

(a) an input that accepts a target optical surface shape;

(b) a module that determines a model optical surface shape based on the target optical surface shape and a set of refractive surgery system parameters; and

(c) a module that adjusts the set of refractive surgery system parameters so as to inhibit an aberration in the model optical surface shape.

45. - 84. (Canceled)